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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,914	05/19/2006	Akira Otani	P29987	8957

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EXAMINER	
KRUPICKA, ADAM C	

ART UNIT	PAPER NUMBER
1784	

NOTIFICATION DATE	DELIVERY MODE
10/15/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/595,914	OTANI ET AL.	
	Examiner	Art Unit	
	Adam C. Krupicka	1784	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *23 July 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-8* is/are pending in the application.

4a) Of the above claim(s) *3-6 and 8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Examiners Note

Applicants' amendments to the claims and arguments filed July 23, 2010 have been received and are acknowledged. Claims 3-8 are pending, claims 3-6 and 8 are withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Connell *et al.* (PGPub US 2001/0008169 A1) in view of Kropp *et al.* (US Pat. 5,362,421).

Connell *et al.* teach an anisotropic adhesive layer comprising an adhesive composition such as that taught by Kropp *et al.* (*paragraph 0038*). The adhesive composition of Kropp *et al.* comprises an initiator (*considered to be a curing agent*) and a curable thermoplastic resin (*abstract and col. 2 lines 20-46*). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the adhesive of Kropp *et al.* as the adhesive composition in forming the adhesive layer of Connell *et al.* because Connell *et al.* is directed to the use of the adhesive of Kropp *et al.* as a useful adhesive in preparing the anisotropic adhesive sheet of Connell *et al.* (*paragraph 0038*).

Connell *et al.* also teach conductive gold-coated polymeric spheres (*considered to be conductive metal particles, paragraph 0064*) that are in the same region of thickness within the adhesive layer. This is because the particles are placed into dimples all of about the same depth which corresponds to the average particle size (*paragraph 0046*). When the adhesive is coated thereon it does not penetrate deeper than the dimples thereby forming an adhesive layer on which the conductive particles exist within no more than the depth of an average particle (*paragraph 0050*). Therefore the maximum thickness range the particles can occupy is one particle or 1.0 times the average particle size within the thickness of the adhesive layer.

Further 99.2% of the particles of Connell *et al.* are considered not to contact other particles based on *figure 6(c)* which shows a micrograph of dimples in a single particle embodiment. The micrograph shows 475 dimples, 4 of which contain two particles, or 99.2% contain one particle. Further the example associated with *figure 6(c)* discloses an average particle size of 4.9μm, and a spacing of 15μm or approximately three times the particle thickness.

Connell *et al.* do not appear to teach a total adhesive layer thickness. However, one of ordinary skill in the art at the time of the invention would have found it obvious to optimize the thickness of the adhesive layer to achieve the ideal adhesive force for an intended use without using too much adhesive as to unnecessarily increase production costs or too much adhesive as to make the layer so thick as to prevent particles from properly contacting opposing electrodes when used in a manner as suggested in *figure 5(c)*, yet enough adhesive must be applied to hold the particles and to sufficiently adhere articles during an indented use.

Connell *et al.* do not appear to explicitly teach the statistical distribution of the particle size and geometry, specifically the ratio of average particle size to maximum particle diameter and the geometric standard deviation of the particles. However, Connell *et al.* teach that the anisotropic conductive adhesives are directed to the field of electronics (*paragraph 0002*) and that each conductive particle is about the same size (*paragraph 0035*). One of ordinary skill in the art at the time of the invention would have found it obvious to utilize conductive particles that are as uniform as economically viable depending on the final use of the adhesive sheet. Particle uniformity in electrical contacts is important in producing reliable electronic contacts and therefore reliable electronic devices. Given that Connell *et al.* teach the use of the adhesive in electronics and that the particles are about the same size, one of ordinary skill in the art could balance the uniformity of the particles with the reliability and cost associated therewith and the present claims are not considered to have set forth a patentable distinction over the adhesive sheet of Connell *et al.* as viewed by one of ordinary skill in the art.

Regarding the limitation that the film is formed by bi-axial stretching of a film having densely packed particles and then transferring them to the adhesive layer, it is noted that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process", *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Further, "the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product", *In re Marosi,* 710 F.2d 798, 802, 218 USPQ 298, 292 (Fed Cir. 1983). See MPEP 2113.

It is the examiner's position that the manner in which the orientation of the particles is achieved does not result in a final adhesive sheets which are patentably distinct. Absent evidence of criticality regarding the presently claimed process and given that the anisotropic adhesive sheet meets the requirements of the claimed composition, the anisotropic adhesive sheet of Connell *et al.* clearly meets the requirements of the present claim.

Response to Amendment

In light of applicants' amendment to the claims filed July 23, 2010 the objection of claim 7 is withdrawn.

Additionally in light of applicants' cancellation of claims 1 and 2, the rejection of claims 1 and 2 under 35 U.S.C. 112 first paragraph is withdrawn.

Response to Arguments

Applicants' arguments filed July 23, 2010 have been considered but have not been found to be persuasive.

Applicants' argue that Calhoun *et al.* do not relate to fine circuit technology, where the present invention relates to fine circuits, however the present claims are not drawn to a particular type of circuitry or electronic device, but instead are directed to an anisotropic adhesive sheet. Further Calhoun *et al.* was relied upon to demonstrate the arrangement of particles as vertices of

approximately equilateral triangles which is no longer required by the present claims. Calhoun *et al.* is therefore no longer relied upon to reject the present claims.

Applicants further set forth arguments with respect to Calhoun *et al.* and the particle size and distribution. However as mentioned above Calhoun *et al.* is not relied upon to teach the specific dimensions of the particles. Given that Calhoun *et al.* was relied upon to teach the arrangement of particles as vertices of approximately equilateral triangles for which the present claims do not require, Calhoun *et al.* is not longer relied upon in the rejection of the present claims.

Applicants argue that Calhoun *et al.* teaches away from the present invention, however as noted above, Calhoun *et al.* is no longer relied upon in the rejection of the present claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam C. Krupicka whose telephone number is (571)270-7086. The examiner can normally be reached on Monday - Thursday 7:30am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Adam C Krupicka/
Examiner, Art Unit 1784

/Jennifer C McNeil/
Supervisory Patent Examiner, Art Unit 1784